

A Proven Method for Meeting Export Control Objectives in Postal and Shipping Sectors

Gregory Crabb, U.S. Postal Inspection Service
Julia H. Allen
Pamela D. Curtis
Nader Mehravari

February 2015

TECHNICAL NOTE
CMU/SEI-2015-TN-001

CERT® Division

<http://www.sei.cmu.edu>



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This material is based upon work funded and supported by USPS under Contract No. FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center sponsored by the United States Department of Defense.

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This report was prepared for the
SEI Administrative Agent
AFLCMC/PZM
20 Schilling Circle, Bldg, 1305, 3rd floor
Hanscom AFB, MA 01731-2125

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DM-0002114

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Acknowledgments

The authors acknowledge the contribution to this report of Sam Lin, Carlos Rodríguez, and Cynthia Shoffner, who served on the U.S. Postal Inspection Service export screening development and piloting teams. The authors also thank Jacob Howley, U.S. Postal Service, and Michael Ray, U.S. Postal Inspection Service, for their thoughtful comments and review of this report.

Abstract

On a weekly basis, the U.S. Postal Service (USPS) processes over one million packages destined to overseas locations. All international shipments being sent from the United States are subject to federal export laws. The USPS has extensive export compliance policies and screening procedures to ensure that customers comply with federal export laws.

Compliance policies and screening procedures are expensive and time consuming, and can negatively affect the efficiency of international mail delivery services. The U.S. Postal Inspection Service (USPIS) has defined, developed, and successfully implemented an innovative approach for export screening that has drastically improved its efficiency, effectiveness, and accuracy. Having benefited from using concepts of operational resilience management to improve the security and resilience of USPS products and services, the USPIS team conducted its new export screening project using a structured and repeatable approach based on the CERT Resilience Management Model (CERT-RMM), developed by the Software Engineering Institute at Carnegie Mellon University.

This report describes how the CERT-RMM enabled the USPIS to implement an innovative approach for achieving complex international mail export control objectives. The authors also discuss how this USPIS application of CERT-RMM might be equally applicable to other shipping and transportation sectors that are tasked with meeting export control objectives.

1 Introduction

In the spring of 2012, the United States Postal Inspection Service (USPIS) Revenue, Product, and Global Security (RPGS) organization was asked to assume responsibility for improving the export screening process for outbound international mail. On a weekly basis, the USPS processes well over one million packages to overseas locations. With this increased responsibility, the USPIS would be responsible for assuring that mailers comply with specific export control standards.

Based on past experience with the Software Engineering Institute's CERT Resilience Management Model (CERT-RMM), the USPIS decided to use this model as the foundation for addressing this new area of responsibility. By using CERT-RMM, the USPIS team was able to

- define compliance objectives that an export screening program is required to meet
- identify relevant practices that help achieve these compliance objectives
- through awareness and training, provide a common language that helped all participating USPIS staff and contractors learn quickly and be able to apply what they learned
- objectively measure operational export screening performance against defined objectives

In three calendar months, the USPIS team defined specific goals and practices that the USPS and USPIS needed to achieve and developed a project plan for doing so; defined work products to guide decision making on what outputs to produce; and took a complex, overwhelming task and managed it using common criteria to define and implement a robust export screening process [Crabb 2012]. In eight additional months, the USPIS team developed and implemented an export screening standard operating procedure, implemented new and updated processes and systems, trained key personnel, and transitioned operational responsibility to an operational manager.

The authors believe that this USPIS application of CERT-RMM for screening international mail to meet export control objectives is likely relevant for organizations faced with meeting these objectives for other types of goods. This application also provides an example of how CERT-RMM might be used as an organizing structure for planning and executing new programs.

2 Background

2.1 USPS and USPIS

The USPS is rooted in a single, great principle: that every person in the United States—no matter who, no matter where—has the right to equal access to secure, efficient, and affordable mail service [USPS 2013]. This principle is supported by the mission of the USPIS, which is the law enforcement arm of the USPS. It is the longest standing federal law enforcement agency in the United States, dating back to 1772. The United States is the only country to have a separate and distinct postal inspection service. As the USPIS describes its purpose,

The mission of the U.S. Postal Inspection Service is to support and protect the U.S. Postal Service and its employees, infrastructure, and customers; enforce the laws that defend the nation's mail system from illegal or dangerous use; and ensure public trust in the mail.... Through its security and enforcement functions, the USPIS provides assurance to American businesses for the safe exchange of funds and securities through the U.S. Mail; to postal customers of the "sanctity of the seal" in transmitting correspondence and messages; and to postal employees of a safe work environment [USPIS 2013].

The USPIS is responsible for protecting the security of the USPS brand name, facilities, information, and technical assets. It enforces over 200 U.S. federal statutes addressing electronic crimes, mail fraud, mail theft, identity theft, child exploitation, and prohibited mailings such as bombs and biological and chemical threats.

Responsibilities of the USPIS RPGS organization include investigating cybercrime and revenue fraud as well as developing secure USPS products. RPGS members serve as the liaison to global law enforcement, which includes promoting more effective security controls through forums such as Interpol and the Universal Postal Union (UPU). The UPU has been an innovative user of the CERT-RMM body of knowledge and has supported its evolution and expansion.

2.2 SEI and CERT

The Software Engineering Institute (SEI) is a federally funded research and development center sponsored by the U.S. Department of Defense and based at Carnegie Mellon University, a global research university recognized for its programs in computer science and engineering. Since 1984, the SEI has been helping government and industry organizations acquire, develop, operate, and sustain software systems that are innovative, affordable, enduring, and trustworthy.

Created in 1988, the CERT Division at the SEI is recognized as a trusted, authoritative organization dedicated to improving the security and resilience of computer systems and networks. It develops and executes technical projects that provide unique solutions to cybersecurity challenges and that measurably improve the security of the cyber environment. The CERT Division partners with government, industry, law enforcement, and academia to develop advanced methods and technologies to counter large-scale, sophisticated cyber threats.

2.3 The CERT Resilience Management Model

CERT-RMM is a capability-focused maturity model for process improvement that reflects best practices from industry and government for managing operational resilience across the domains of security management, business continuity management, and aspects of information technology (IT) operations management. CERT-RMM defines operational resilience as “the emergent property of an organization that can continue to carry out its mission in the presence of operational stress and disruption that does not exceed its limit” [Caralli 2011]. Operational resilience is an organization’s ability to protect its critical assets and keep essential services and processes operating, particularly during times of stress and disruption.

Through CERT-RMM, these best practices are integrated into a single model that provides an organization with a transformative path from a silo-driven approach for managing operational risk to an approach focused on achieving resilience management goals and supporting the organization’s strategic direction. Practices focus on improving the organization’s management of key operational resilience processes. This improvement enables high-value services to meet their missions consistently and with high quality, in normal and adverse conditions [Caralli 2011].

CERT-RMM helps to ensure that the organization’s important assets—people, information, technology, and facilities—effectively support business activities and services. The model serves as a foundation from which an organization can measure its current competency, set improvement targets, and establish plans and actions to close any identified gaps. As a result, the organization repositions and repurposes its security, business continuity, and IT operations activities and adopts a process improvement mindset that helps to keep services and assets productive in the long term [Allen 2012].

The model describes a process-based framework of goals and practices at four levels of increasing capability (Incomplete, Performed, Managed, and Defined) and a companion appraisal method. It comprises 26 process areas (PAs), shown in Table 1, that define a set of practices that, when implemented collectively, satisfy a set of goals considered important for effectively managing the organization’s ability to be operationally resilient [Caralli 2011].

Table 1: CERT-RMM Process Areas

Access Management	Measurement and Analysis
Asset Definition and Management	Monitoring
Communications	Organizational Process Definition
Compliance	Organizational Process Focus
Controls Management	Organizational Training and Awareness
Enterprise Focus	People Management
Environmental Control	Resilience Requirements Development
External Dependencies Management	Resilience Requirements Management
Financial Resource Management	Resilience Technical Solution Engineering
Human Resource Management	Risk Management
Identity Management	Service Continuity
Incident Management and Control	Technology Management
Knowledge and Information Management	Vulnerability Analysis and Resolution

Users of the model select the PAs, goals, and practices that apply to a specific objective (such as those for the export screening of international mail) and ignore the rest. It is critical to identify which model content is most relevant based on the project need [Crabb 2012].

SEI staff members were not involved in this application of CERT-RMM but were asked by the USPS to conduct interviews, review artifacts, and document this project since it will likely serve as the basis for several future USPS projects.

2.4 USPS and USPS Use of CERT-RMM

Developing and implementing measurable methodologies for improving the security and resilience of a national postal sector directly contribute to protecting public and postal personnel, assets, and revenues. Such methodologies also contribute to the security and resilience of the mode of transport used to carry mail and the protection of the global mail supply chain.

Since 2011, the USPS has collaborated with the CERT Division to improve the resilience of selected USPS products and services. This collaboration has included projects dealing with incident response, export screening, authentication services, physical security and aviation screening for international mail, Priority Mail Express revenue assurance, and development of mail-specific resilience management practices for mail induction, transportation, delivery, and revenue assurance.

These efforts are more fully described in the following reports:

- *A Proven Method for Identifying Security Gaps in International Postal and Transportation Critical Infrastructure* [Crabb 2013]
- *Improving the Security and Resilience of U.S. Postal Service Mail Products and Services Using the CERT® Resilience Management Model* [Crabb 2014]
- *CERT Resilience Management Model Mail-Specific Process Areas: Mail Induction, Version 1.0* [Allen 2014a]
- *CERT Resilience Management Model Mail-Specific Process Areas: Mail Revenue Assurance, Version 1.0* [Allen 2014b]
- *CERT Resilience Management Model Mail-Specific Process Areas: International Mail Transportation, Version 1.0* [Allen 2014c]

3 Export Control Challenges

This section describes export control; the challenges involved in screening mail to meet laws, regulations, and standards for export control; and the objectives for improving the export screening process using CERT-RMM.

3.1 What Is Export Control?

All international shipments being sent from the United States and its possessions or territories are subject to federal export laws and regulations that may require approval for or otherwise restrict what can be sent to certain countries, individuals, or entities. The standards apply to all outbound international mail containing goods (i.e., not letters or documents) and the electronic transfer of certain information and technologies to foreign countries, individuals, and entities including foreign nationals within the U.S.

Such laws and regulations are designed for U.S. national security, toward combating terrorism, crime networks, and the proliferation of weapons of mass destruction. They also protect foreign policy interests (e.g., protecting human rights and promoting democracy), and economic interests (e.g., keeping scarce commodities in the U.S.). All entities shipping internationally from the U.S. are required to comply with federal export laws and regulations. Failure to comply with these regulations can result in civil and criminal penalties.

Export control laws, regulations, and standards are established by a number of U.S. government agencies, including the following units of the U.S. Commerce Department, State Department, and Treasury Department:

- Bureau of Industry & Security (BIS)—Commerce
- Census Bureau, Foreign Trade Division—Commerce
- Office of Foreign Assets Control (OFAC)—Treasury
- Directorate of Defense Trade Controls (DDTC)—State
- Customs and Border Protection (CBP)¹

An export license grants permission to conduct a certain type of export transaction. Some international shipments may be subject to one or more export licenses from these agencies. Other countries have similar export control laws requiring export licenses for certain items.

3.2 Objectives and Challenges of Export Control at USPS

Given the wide-ranging laws, regulations, and standards from multiple agencies, screening against violations is a complex process. USPS export screening policies and procedures ensure that U.S. customs declaration data is collected and used to screen for restricted items being sent to specific

¹ Only CBP has statutory/Constitutional authority to routinely open mail without a warrant for law enforcement purposes. USPS and USPIIS do not have such authority.

countries, individuals, and entities to maintain the sanctity of the U.S. mailstream and protect U.S. interests.

Objectives for export screening include ensuring that neither the sender nor the recipient of international parcels mailed from the U.S. is listed on the OFAC Specially Designated Nationals (SDN) list, the BIS Denied Parties and Entity lists, and other applicable government lists. The USPS also must ensure that unlicensed restricted content is not sent to countries subject to comprehensive embargoes, such as North Korea, Cuba, Sudan, Iran, and Syria. All mailers are required to comply with federal laws, regulations, and standards for export control.

The USPS and USPIS are responsible for screening all relevant parcels for potential violations and ensuring that parcels that do not meet screening standards are blocked from export. If violations occur, the USPS and USPIS generate investigative leads that are pursued by law enforcement agencies. To help prevent violations, the USPS and USPIS educate mailers to ensure they understand their responsibilities.

The implementation, operational use, and enforcement of export screening policies and procedures are complex, expensive, labor-intensive, and time-consuming, and can negatively affect the overall efficiency of international mail delivery services.

3.3 Objectives for Improving Export Screening at USPS

In the spring of 2012, RPGS was asked to assume responsibility for improving the export screening process for outbound international mail. Faced with the export control objectives and challenges described above, the export screening project team defined the following project objectives:

- Reduce the incidence of mail shipments violating export control laws, regulations, and standards.
- Evaluate current processes and systems and identify actions required to improve overall efficiency, effectiveness, and accuracy. Specific goals include
 - Reducing delays in processing outbound parcels.
 - Reducing excess labor costs and improve the efficiency of resources used.
- Establish and improve relationships with key stakeholders.
- Establish and maintain written standard operating procedures and screening parameters.
- Regularly assess and improve processes and systems, including staff training.

The first operational capability, intended to meet many of these objectives, was scheduled to be up and running by 1 August 2012, three calendar months from the project kickoff.

4 Development of the New Screening Process

4.1 “Walking the Model”

The export screening (ES) project team first met with key stakeholders to understand process flows and other aspects of current operations, existing gaps, and the improvements desired. Team members received educational briefings to familiarize themselves with the applicable export control laws, regulations, and standards. The team defined high-level project expectations and outcomes for the following:

- Defining and managing processes
- Identifying and assigning required resources
- Establishing standard operating procedures
- Ensuring a smooth transition from the current system
- Defining the division of responsibilities
- Identifying required data sources and process flows
- Identifying required law enforcement capabilities
- Addressing regulatory and compliance concerns

Members of the ES project team were very familiar with CERT-RMM, having applied it to a number of other projects and risk areas. This experience led the ES team to use CERT-RMM as the organizing structure for this particular improvement effort. The team examined each of the 26 process areas (PAs) in the CERT-RMM and selected the PAs, specific goals, specific practices, and work products that would be most applicable for achieving the goals of the project (referred to as “walking the model”).² The ES team organized the selected PAs into eight functional areas, each of which would be addressed by a project subteam. The functional areas and the applicable CERT-RMM PAs are shown in Table 2.

Table 2: Export Screening Functional Areas and Applicable CERT-RMM PAs

Functional Area	CERT-RMM Process Area(s)
Human resources	Human Resource Management (HRM)
Compliance/screening	Compliance (COMP) Controls Management (CTRL) Monitoring (MON)
Physical controls and mail security	Environmental Control (EC)
Communications	Communications (COMM)
Information management	Measurement and Analysis (MA)
Training	Organizational Training and Awareness (OTA)
Incident management	Incident Management and Control (IMC)
Measurement and monitoring	Measurement and Analysis (MA) Monitoring (MON)

² A similar process is used for determining the scope of a CERT-RMM appraisal.

A subteam was formed for each functional area, RPGS staff agreed to roles and responsibilities, and each subteam defined their respective project plans for developing the work products called for in the applicable PAs. For example, in the Compliance domain, the ES team selected the following specific practices:

- COMP:SG1.SP1, Establish a Compliance Plan
- COMP:SG1.SP2, Establish a Compliance Program
- COMP:SG1.SP3, Establish Compliance Guidelines and Standards
- COMP:SG2.SP1, Identify Compliance Obligations
- COMP:SG2.SP3, Establish Ownership for Meeting Obligations
- COMP:SG3.SP1, Collect and Validate Compliance Data

Among the work products the team identified as output from these practices were a staffing plan, a budget plan, an inventory of compliance obligations, the definition of compliance reports (to demonstrate compliance), a data collection strategy, and workroom floor job aids.

The CERT-RMM guidance served as the basis for project implementation, including making updates to existing processes and systems, developing new processes and systems, and handling other aspects of the activities described in the next section.

4.2 Subteam Activities

The ES subteams performed some of the following activities as part of their development process:

- Reviewed and inventoried all relevant export control laws, regulations, and standards from the multiple U.S. government agencies involved.
- Defined and documented the changes necessary to facilitate more effective export screening, both on the front end and back end of the screening process. This activity involved having access to electronic customs data for all parcels on the front end, for example, and identification of mailer violations of export control standards at USPS International Service Centers (ISCs) on the back end.
- Defined and documented impacts on current mail handling processes from the perspective of both the USPS and the USPIS.
- Described scenarios to use for defining and testing the completeness of the new processes, such as (1) What customs form should a customer use to send \$500 of toys weighing two pounds to Peru? To Cuba? To North Korea? and (2) A Priority Mail Express package with \$10 of aspirin from Joe's Pharmacy is being shipped to Fatima in Syria. Should the ES system pass or hold the item?
- Defined a transition plan for each ISC with the objective that ISC program managers are trained sufficiently to manage export screening activities at their respective ISCs and to train all of their contractors on their responsibilities and tasks. All program managers agreed to start the new ES process on August 1, 2012 and work closely with their staff and contractors to ensure they were adequately trained.
- Developed new and updated position descriptions for the new ES process.
- Developed and updated ES data analysis tools and reporting queries.

4.3 Training, Rollout, and Monitoring

In early July 2012, the ES team defined the transition plan for each of the five ISCs, which have the responsibility for conducting export screening of outbound international mail. In late July, the ES team conducted an intensive one-week course to train ISC leadership in using the new ES processes and systems. On 1 August, after only three months and as planned, operational responsibility for ES was transferred from the USPS to the USPIS.

During August and September, members of the ES team visited and conducted additional training at specific ISCs. USPS staff and contractors attended the training, and testing was administered at the completion of each course to determine who required additional training and who could serve as mentors at each ISC facility. Members of the ES team participated in additional training conducted by the Consortium of Export Control Regulators for further education and to collect information necessary to develop a USPS standard operating procedure (SOP) for ES. The SOP was finalized in November 2012 and training on the SOP was conducted at the ISCs.

In March 2013, the ES team conducted advanced ES training for ISC supervisors and continued to update ES processes and systems to reflect updates to specific country export control laws and regulations. In the March/April 2013 time frame, operational responsibility for the updated and improved ES data system was transitioned from the ES team to the team having operational responsibility.

After the operational transition, the RPGS team commenced monitoring, control review, and data analysis of the ES process using a Lean Six Sigma process. This project had the following goals:

- Determine if the current workforce is the right size for the export screening operation.
- Identify and measure the current IS export screening process at each of the five ISCs.
- Perform a gap analysis on the export screening process to identify opportunities to remove waste, reduce cycle time, and eliminate inefficient processes.

The team developed a detailed process flow and generated regular performance metrics and error rate analysis results. For the remainder of 2013, the RPGS team served as consultants to the operational team.

Figure 1 summarizes the development processes used by the ES project team.

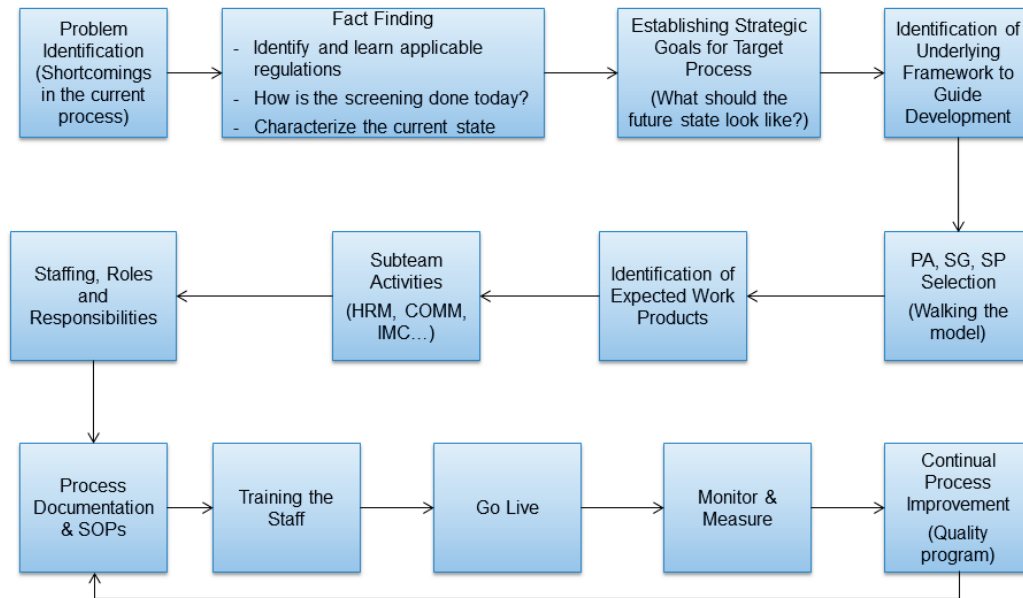


Figure 1: Export Screening Development Process

4.4 The Resulting Export Screening Process

A detailed description of the new export screening process that resulted from the ES team's development work is beyond the scope of this report; however, Figure 2 and Figure 3 depict a high-level view of these processes. (In Figure 2, *induction* involves acceptance of the mail into the mailstream and all necessary validation.)

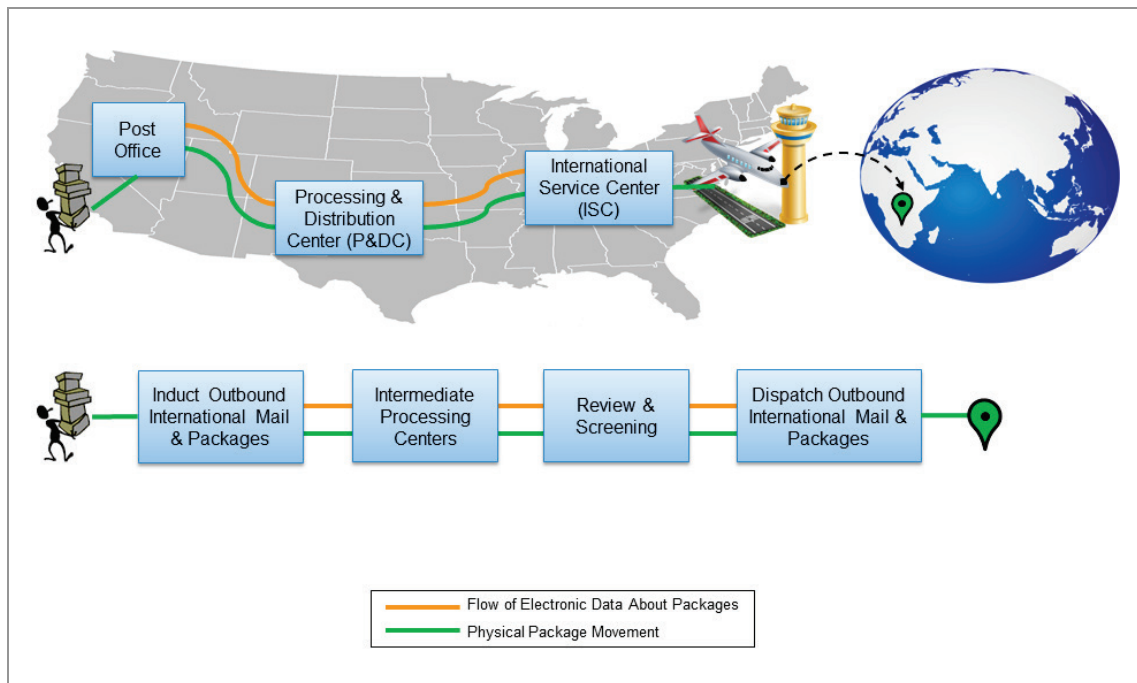


Figure 2: Induction and Processing of International Mail

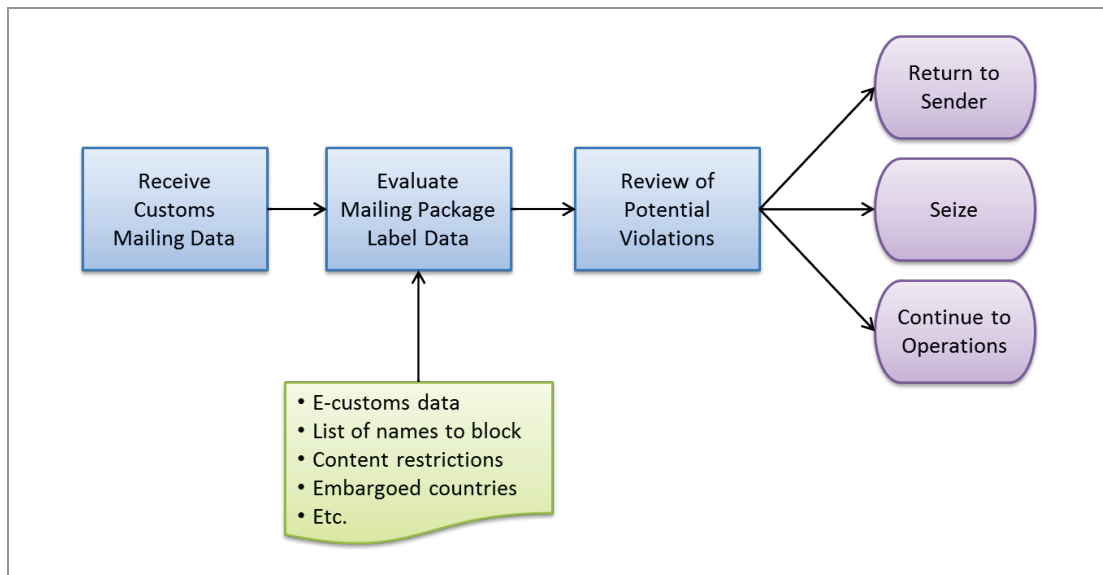


Figure 3: The Export Screening Process

Customers may submit their mail into the mailstream at several points. During this phase, information from the customs declaration form is validated and the mailpiece is given an acceptance scan.

Customs declaration data is subject to export screening while the associated mailpieces are in transit to the ISC, and suspicious mailpieces are flagged for additional review at the ISC.

At the ISC, the information obtained in the induction phase with the acceptance scan is used to sort the mailpieces. If the mailpiece does not need to be held or delayed for further review, it is then dispatched to its final destination.

Mailpieces that receive a hold are sent to the USPIS. The USPIS may send the mailpiece to other appropriate agencies for additional review as required.

5 Benefits, Improvements, and Conclusions

The ES project met all defined standards, objectives, and project and stakeholder expectations, on budget, and on schedule. It is actively in use today at all five ISCs, which are responsible for processing all outbound international mail.

5.1 Benefits

The benefits of the approach taken by the ES project team included the following:

- The team defined objectives that an export screening program needed to meet, identified relevant practices to achieve these objectives, and objectively measured and improved operational export screening performance against these objectives.
- All ES team members spoke a common language based on CERT-RMM goals, practices, and work products.
- Subteam roles and responsibilities were well defined.
- Through awareness and training, the ES team provided a common language for export screening that helped all participating USPIS staff and contractors learn quickly and be able to apply what they learned. As a result, there was a strong sense of ownership of new ES processes and systems by the staff.
- Relationships with key stakeholders were established and continue to be maintained.

5.2 Improvements

The successful execution of the ES project resulted in the following improvements:

- A written standard operating procedure was developed and is being maintained.
- There is regular measurement and evaluation of ES processes and systems using a Lean Six Sigma process and continual improvements.
- There has been a reduction in delays associated with processing outbound parcels.
- There is increased efficiency in how staff and technology resources are used.
- There is increased accuracy in how parcels that require export screening are identified.
- There is reduced risk of dispatching parcels that violate export control laws and/or that may be of interest to fellow law enforcement agencies.

5.3 Conclusions

USPIS RPGS leadership has stated that this project would not have been successful in the required timeframe without the use of CERT-RMM as the foundational architecture and structure for this development effort.

While CERT-RMM is generally recognized as a comprehensive body of knowledge for improving operational resilience processes, this project also demonstrated how CERT-RMM can be used as an organizing structure for planning and executing new programs and in establishing new functional capability within an organization.

The authors believe that the USPIIS application of CERT-RMM for screening international mail to meet export control objectives is likely relevant for organizations and operators in postal, shipping, and other transportation sectors faced with meeting these objectives for other types of goods.

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE February 2015		3. REPORT TYPE AND DATES COVERED Final
4. TITLE AND SUBTITLE A Proven Method for Meeting Export Control Objectives in Postal and Shipping Sectors			5. FUNDING NUMBERS FA8721-05-C-0003	
6. AUTHOR(S) Gregory Crabb, Julia H. Allen, Pamela D. Curtis, and Nader Mehravari				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Software Engineering Institute Carnegie Mellon University Pittsburgh, PA 15213			8. PERFORMING ORGANIZATION REPORT NUMBER CMU/SEI-2015-TN-001	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) AFLCMC/PZE/Hanscom Enterprise Acquisition Division 20 Schilling Circle Building 1305 Hanscom AFB, MA 01731-2116			10. SPONSORING/MONITORING AGENCY REPORT NUMBER n/a	
11. SUPPLEMENTARY NOTES				
12A DISTRIBUTION/AVAILABILITY STATEMENT Unclassified/Unlimited, DTIC, NTIS			12B DISTRIBUTION CODE	
13. ABSTRACT (MAXIMUM 200 WORDS) <p>On a weekly basis, the U.S. Postal Service (USPS) processes over one million packages destined to overseas locations. All international shipments being sent from the United States are subject to federal export laws. The USPS has extensive export compliance policies and screening procedures to ensure that customers comply with federal export laws.</p> <p>Compliance policies and screening procedures are expensive and time consuming, and can negatively affect the efficiency of international mail delivery services. The U.S. Postal Inspection Service (USPIS) has defined, developed, and successfully implemented an innovative approach for export screening that has drastically improved its efficiency, effectiveness, and accuracy. Having benefited from using concepts of operational resilience management to improve the security and resilience of USPS products and services, the USPIS team conducted its new export screening project using a structured and repeatable approach based on the CERT Resilience Management Model (CERT-RMM), developed by the Software Engineering Institute at Carnegie Mellon University.</p> <p>This report describes how the CERT-RMM enabled the USPIS to implement an innovative approach for achieving complex international mail export control objectives. The authors also discuss how this USPIS application of CERT-RMM might be equally applicable to other shipping and transportation sectors that are tasked with meeting export control objectives.</p>				
14. SUBJECT TERMS United States Postal Service, USPS, United States Postal Inspection Service, USPIS, CERT-RMM, CERT Resilience Management Model			15. NUMBER OF PAGES 28	
16. PRICE CODE				
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	